

**ABSTRACT OF THE INVENTION**

Apparatus and method to perform therapeutic treatment and diagnosis of a patient's vasculature through the use of an intravascular device having an optical fiber disposed therein. In an embodiment of this invention, the apparatus includes a therapeutic guidewire and at least one optical fiber disposed through the therapeutic guidewire, the optical fiber capable of providing diagnostic information before, during, and after the therapeutic treatment. In an embodiment, diagnostic information includes vessel and blood characteristics such as hemodynamic characteristics, hematological parameters related to blood and blood components, and thermal parameters of the vasculature.